EXTENSION

THE FARM AND FARM HOME MAGAZINE February 1963

EXTENSION

THE FARM AND FARM HOME MAGAZINE

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32

OUR COVER—The flowering of mustard brings the message of spring and gaiety in the countryside. Mustard is one of our major oilseed crops. Our Central and State Governments are making all efforts to step up the production of oilseeds in the country.

FARM INFORMATION UNIT
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SUMMER VEGETABLES

and how to grow them

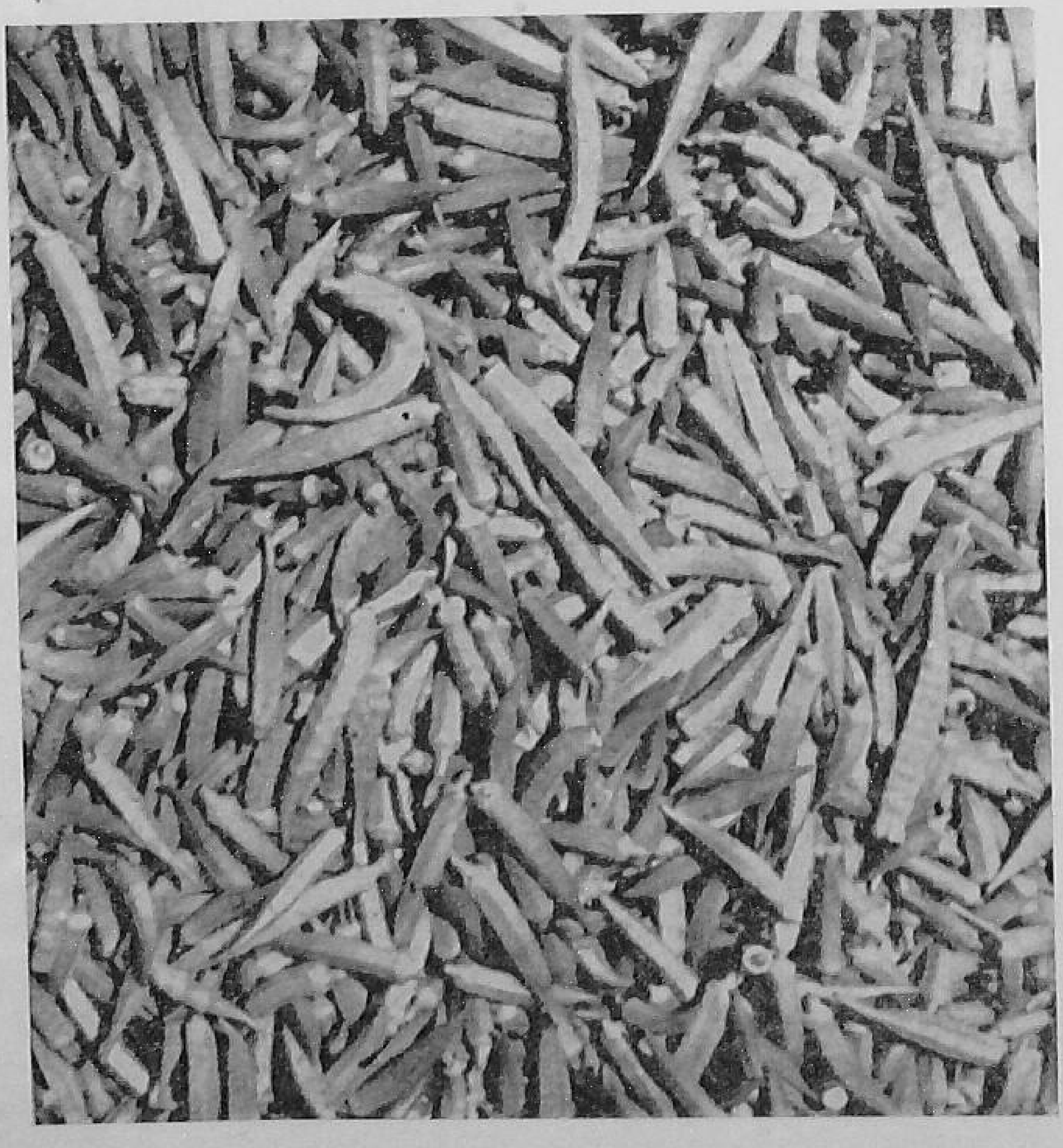
By L. VENKATARATNAM

You will make a handsome profit, if you grow vegetables in summer. During this period, vegetables are in short supply in the market, and because of that their prices are high.

In summer, many farmers do not grow vegetables because of the high temperature and the shortage of irrigation water. But if you have enough irrigation water, you can very well grow summer vegetables. They are easier to grow, as they are comparatively free from pests and diseases.

The following are some hints on the cultivation of some of the important summer vegetables.

Lady's finger (bhindi)



LADY'S FINGER (*BHINDI*)

Grow a good variety of *bhindi*. For summer sowing, *Pusa Makhmali* is better than *Pusa Sawani*. *Red Wonder* is another variety which bears attractive, tender pods. In some places such as in coastal regions, the leaf vein mosaic disease is a problem even in summer. *Pusa Sawani* alone should be sown in such areas.

Sow the seed in February to get a continuous supply of pods throughout the summer months. Give two to three ploughings and incorporate 20 cartloads of cattle manure per acre. Level the land.

How to sow :

Before sowing, soak the seeds overnight and dry them during the day-time. Soaked seeds germinate quickly and uniformly.

Sow the seeds in the afternoon or evening, in lines six inches apart.

Sow thickly. This will help the crop withstand severe hot winds. It creates humidity which promotes fruit-set in plants. If you sow thinly, the flowers may drop in the month of May when the day temperature goes beyond 108°F.

About 15 to 20 kilograms of seed will be required to sow an acre this way.

Irrigate the crop twice a week.

When the crop is a month old, apply 20 kilograms of ammonium sulphate or 10 kilograms of urea. Sprinkle the fertilizer in bands in the centre of each row before irrigation. Two such applications at an interval of 15 or 20 days will result in an excellent crop.

Check jassids :

The crop when a foot high is often attacked by jassids. These are greenish white minute insects which crowd on the undersurface of the leaves.

Control them by spraying 'Endrin,' 'Malathion' or 'Parathion.' Dissolve one pound of the chemical in 40 to 60 gallons of water to spray an acre.

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This treatment will cost Rs. 15 to 20 per acre, but will save you a crop worth a few hundred rupees.

After ten weeks of sowing, *i.e.* some time in the middle of April, you can start harvesting the crop, and continue till the end of May.

Pick the pods when they are still tender and not fibrous. The tips of tender pods break when bent a little. Retain the first-formed pods for seed.

Borers, beetles and a host of other insects may attack the pods and cause serious loss of crop.

Control these insects by using the same spray as is used against jassids.

An acre of *bhindi* grown around towns and cities will easily fetch an income of Rs. 300.

LEAFY VEGETABLES

The common leafy vegetables for sowing in summer are amaranthus (*chaulai*), basella (*poisag*), *ambada* or *gogu* (*Hibiscus* sp.) portuluca or purslane (*kulfa*) and Indian spinach (*palak*). These should be grown in shady situations.

Most of these vegetables have very fine seeds. Mix the seed with ten times its volume of sand and wood ash prior to sowing. This will help uniform sowing. Sprinkle the mixture in straight rows, one foot apart, and cover the rows gently with a flat wooden plank.

All leafy vegetables respond well to the application of ammonium sulphate or urea. Use a pound of fertilizer for a row of 100 feet. Apply the fertilizer about three inches away from the base of the plants, in a band between every two rows. Irrigate thoroughly after the application.

A stronger dose of fertilizer or any neglect in irrigation is likely to produce a scorching effect on the plants.

Do not use BHC or DDT to control pests and diseases. They will produce a bitter flavour. Use wood ash, *neem*-cake solution, etc.

CUCUMBER

Cucumber comes up best in sandy or silty soils. Sowing can be done from February to March. For an early summer crop, sow the crop in February. The local green variety is the best for growing during this season.

You can take another crop of cucumber in June.

Make circular pits of two feet diameter, four feet apart in the field. Fill them up with a mixture of top-soil and one basket of finely sieved manure. In each pit, sow four to five seeds, one centimetre deep at equal distances.

Irrigate regularly to keep the soil just moist. In no case should you overirrigate the crop.

When the plants are about a month old, apply ammonium sulphate at the rate of half an ounce per pit. Place the fertilizer in a circular band around the plants, two inches below the surface of the soil. Keep the land free of weeds.

Sixty days after sowing, fruits begin to set and continue for two months. As the fruits mature they attain the particular colour of the variety. Pick the fruits when they are still tender and green.

The leaves of the plants are often attacked by small, reddish brown beetles, which are the worst enemies of cucumber. These beetles also attack the whole group of summer vegetables like *tinda,* pumpkin, ash-gourd (*petha*), etc.

Dust ash and 'Dieldrin' powder to control the beetles. Never use DDT and BHC, as these might be absorbed by the plants and give a bitter taste to the fruits.

SQUASH MELON (*TINDA*)

Tinda prefers sandy soils and grows best in the warm season. It can also be raised during the rainy season in July as a late crop.

There are whitish green and dark green varieties of *tinda.* The former is more popular of the two, because of its quality.

Tinda is cultivated exactly like cucumber.

MINIATURE MELON (*KAKRI*)

Sow *kakri* in February. But where the winter is severe, March is the ideal month for sowing. The cultivation is the same as that of cucumber. The insect pests and diseases affecting *kakri* and their control measures are also the same.

POINTED GOURD (*PARWAL*)

You can sow *parwal* from February to March, and also in September-October after the rainy season.

Parwal is a creeper. You have to plant cuttings of about twelve inches' length. Roll and twist the cuttings, and bury them three inches deep, keeping the two ends exposed. Plant the vines at a distance of four feet either way in flat beds.

Parwal has both male and female plants. Plant one male plant for every twenty female creepers, at the ends of the rows of female plants. This will help

a proper fruit-set. Often there is a failure of crop due to the fact that most of the plants raised from seed happen to be males.

You will be sure to obtain the required number of male and female plants, if you use cuttings instead of seed for planting.

When the plants are about a foot high, heap earth around the base of each plant to a height of four to six inches. Then support the plants with small stakes.

Give at least half a basket of old farmyard manure per plant.

Red pumpkin beetle and aphis may attack the plants. The remedial measures are similar to those in the case of cucumber.

The *parwal* plants start giving fruit about four months after planting. The peak period is June-July.

The plants wither away in winter, and sprout again in February next year and then fruit during June-July. This way, a *parwal* crop gives fruits for three years. Afterwards, fresh cuttings have to be planted.

WATER-MELON

Water-melon comes up best in river beds. It is sown in winter, and the fruits are harvested in April-May. The harvesting may extend up to the end of June.

Sow the seeds in February.

Select a good variety. The *Japanese Midget* variety bears compact and hardy fruits, each weighing three to four pounds. The fruit possesses attractive flesh, and tastes sweeter than the local varieties. *Ashahi Yamato* is another Japanese variety, which yields big-sized melons, weighing 10 to 15 pounds.

Seeds of these Japanese varieties can be obtained from the Division of Horticulture, Indian Agricultural Research Institute, New Delhi.

The cultivation of water-melon is similar to that of cucumber.

MUSK-MELON (*KHARBUZA*)

The soil for musk-melon should be sandy or silty. For this reason, *kharbuza* is grown all over the country in river beds.

There are several varieties of musk-melon. Among these, *Lucknow Sufeda* and *Nawabganji* of Kanpur, and *Sharbati* and *Hingan* of Cudapah in Andhra Pradesh are the important commercial varieties. *Amritsari* or *Hari Dhari* is a good variety popular in the Punjab. It possesses white flesh with green-specked rind.

For sowing, make circular pits of two feet diameter keeping the distance between the pits at about four to five feet. To each pit, add a basket of farmyard manure and two ounces of superphosphate to the soil.

Before sowing, sprout the seeds by keeping them in a wet cloth. Sow the sprouted seeds in pits. Sow six seeds per pit at a distance of six to eight inches.

The cultivation of musk-melon is the same as that of cucumber. The pests and diseases which attack musk-melon and their control measures are also the same.

Harvest when the rind of the fruit changes colour and becomes soft. You may also harvest the fruit in a half-ripe condition and allow it to ripen fully later in storage.

SNAP-MELON

The fruit of snap-melon splits on ripening, and for that reason it is locally called *phut*. The cultivation of snap-melon is similar to that of musk-melon and other melons.

CLUSTER-BEAN (*GUAR*)

Cluster-bean or *guar* is grown both as a vegetable and as a fodder. It may also be grown as a green manure crop, instead of keeping the plots vacant during summer.

Sow the seed in March by dibbling, one centimeter deep and with a distance of six inches. Keep the distance between the rows at about one foot.

Select a suitable variety. *Pusa Sada Bahar, Pusa Mausmi, Early Long, Gujarat* and *Nadiad* are the varieties whose pods are not hairy and fibrous, and hence are good as vegetable. *Pusa Sada Bahar* is good for sowing in summer and *Pusa Mausmi* for the rainy season.

COWPEA

You may grow cowpea both for vegetable and for fodder and green manure. *Pusa Phalguni* is an excellent vegetable variety for summer. *Sirsa First* and *Type II* of Kanpur are prolific growers, and are good for fodder and green manure.

Plough the land well and apply superphosphate at the rate of two pounds per 100 square feet, about three inches deep in the soil. This will ensure a vigorous growth of the crop.

Sow cowpea in March by dibbling two to three seeds in circular pits of two feet diameter, spaced three feet apart.

BOTTLE-GOURD (*LAUKI*)

Like all other gourds, *lauki* likes a sandy soil. It grows almost throughout the year, but the crop raised in March or June thrives best.

For March sowing, select the variety *Pusa Summer Prolific*. It gives eight to ten fruits per creeper. *Jagtial Long* of Hyderabad produces bottle-gourds which are six feet long and six to eight inches in diameter.

Dig the plot and make small, circular mounds of about two feet diameter, four to five inches high, at a distance of six feet either way. Add two baskets of finely powdered farmyard manure to each mound.

Sow three to four seeds one inch deep in each mound. The seeds germinate within a week. Thin out the seedlings, keeping only two strong ones to each mound.

The plants are often attacked by small reddish brown beetles. Control them by dusting 'Dieldrin' powder at the rate of two ounces per 100 square feet.

RIBBED GOURD AND SPONGE GOURD

The cultivation of ribbed gourd (*tori*) and sponge gourd (*ghia tori*) is the same as that of bottle gourd (*lauki*). Sow the seeds in June-July, keeping a distance of six feet between the plants. You will have to provide bowers to the vines.

The sponge gourd is a hardy plant. It will give 30 to 50 smooth-skinned fruits per plant, whereas the ribbed gourd will give only 10 to 20 coarse-skinned ribbed fruits.

Mangalore 345 is a promising variety of ribbed gourd which produces fruits about 15 inches long. It grows well in humid regions.

Often the developing gourds are punctured by a fruit fly, which lays its eggs inside the fruit. The attacked fruits rot. The damage cannot be checked once the fly lays its eggs inside the gourds. The only way to get rid of these flies is to bait and kill them.

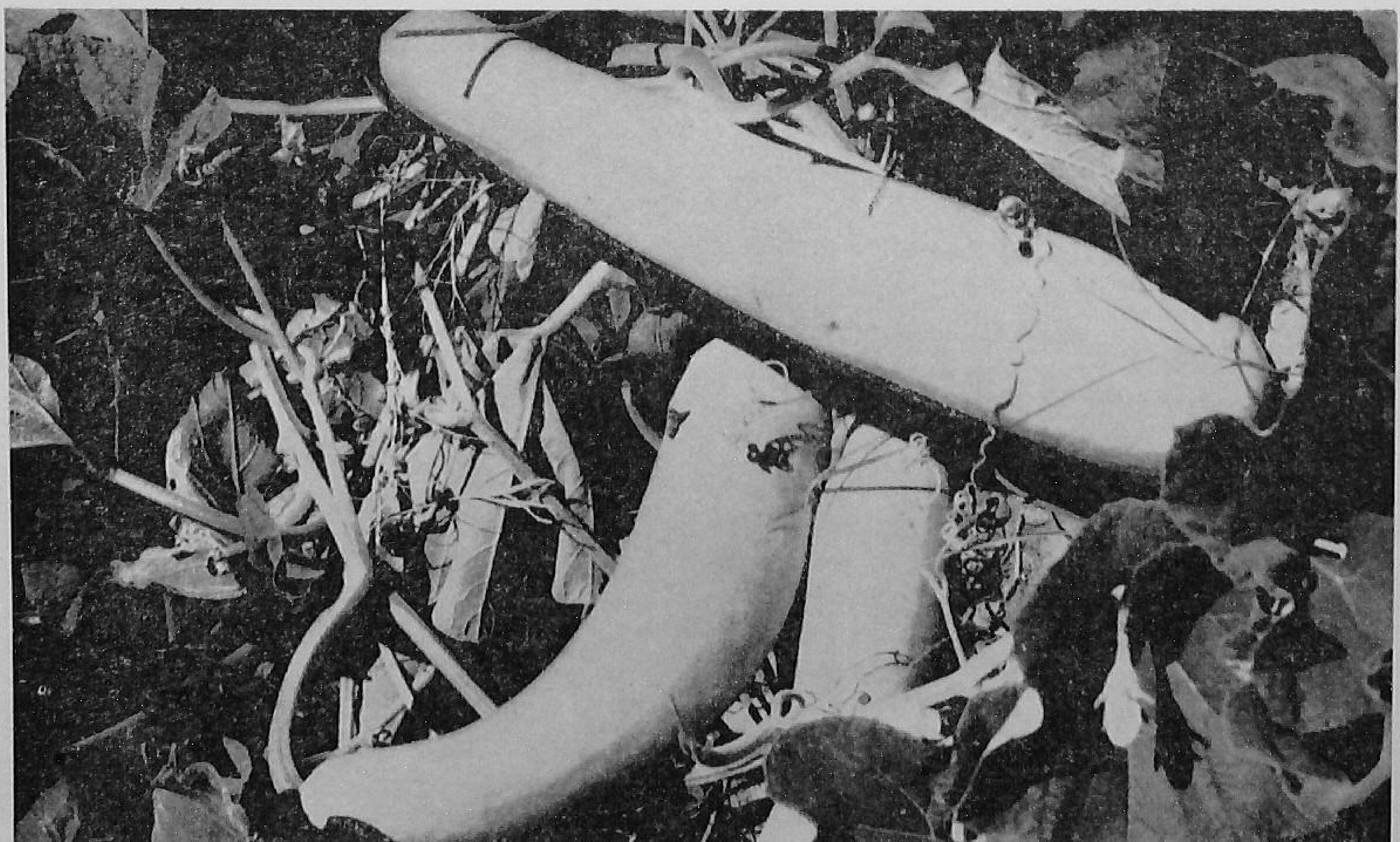
Prepare the bait by mixing jaggery and a spoonful of vinegar with a pinch of ten per cent DDT or lead arsenate. Keep this mixture in small flat saucers near the plants.

Use such baits from time to time to keep down the fly population. Remove the damaged fruits and bury them.

BITTER GOURD

You can sow bitter gourd (*karela*) in March or in July.

Bottle-gourd (lauki) *is one of the most popular vegetables*



The seeds take seven to ten days to germinate. The *karela* creeper needs a small bower of about four feet by four feet size.

The fruit fly causes heavy damage to this crop also. To check this insect, take the control measures described under ribbed gourd.

SNAKE-GOURD (*CHACHENDA*)

It is grown purely as a late-summer or rainy-season crop all over the country. There are green, striped-green and white types, with long fruits four to six feet long and also short and stumpy ones with fruits about 12 inches long.

You can sow the seeds from April to July. Early sowings escape the attack of fruit fly.

The cultivation of *chachenda* is similar to that of ribbed gourd. You can make the fruit develop straight by tying a small stone to its end with a piece of string.

PUMPKIN

Large Red, Large Cheese, Yellow Fleshed and *Red Fleshed* are the common varieties. *Yellow Fleshed* varieties are more hardy, but are not as sweet as the *Red Fleshed* ones.

Flowering commences after 80 days, and the fruits take two months to mature. You can harvest the fruits from February to April.

The cultivation of pumpkin is similar to that of cucumber. A pumpkin plant needs an area of at least 150 square feet for spreading.

ASH-GOURD

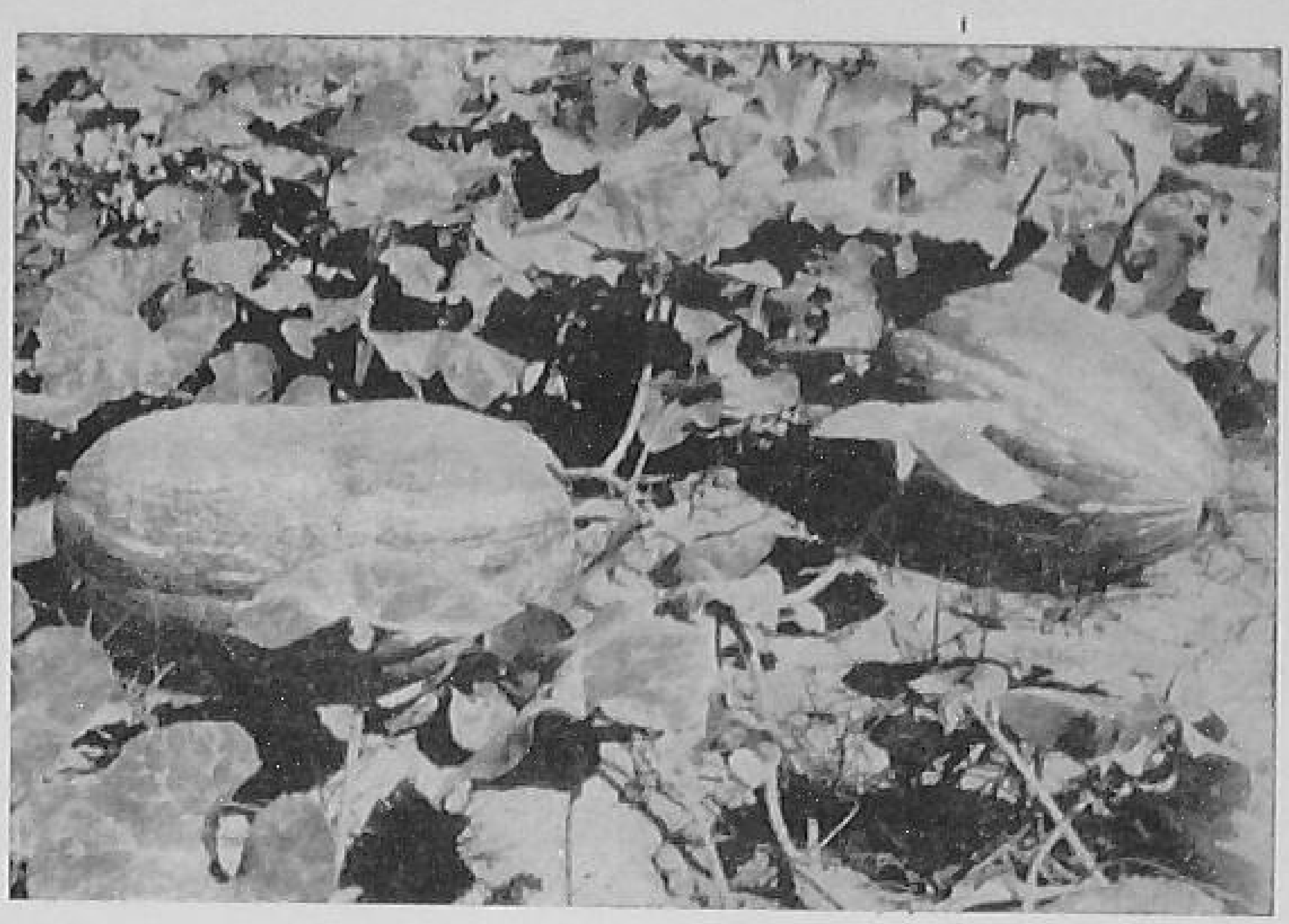
Ash-gourd grows best in a silty loam soil.

There are several varieties, differing in size and appearance. Some are green or greenish white, without much wax on the surface; others are white with wax coating. The white ones keep much better than the green types in storage.

Sow the seeds in June-July. A creeper spreads over an area of over 250 square feet and bears three to four gourds. Its cultivation is similar to that of cucumber and pumpkin.

Both pumpkin and ash-gourd are affected by the red pumpkin beetles. Control them by dusting ash and 'Dieldrin' powder. Never use DDT and BHC, as the gourds are likely to absorb the insecticides and develop a bitter taste.

Mature ash-gourds can be stored easily for two months without any decay. While pumpkin tastes well when harvested in its tender stage, ash-gourd improves in quality when it becomes fully mature.



Pumpkin

KUNDRU OR *TONDLI*

Kundru or *tondli* is a creeper vegetable, which bears small, cucumber-like, cylindrical fruits, three to four centimetres long and 1.5 centimetres in diameter.

You have to raise *tondli* by planting small pieces of stems of the thickness of a pencil. You can also use thicker pieces of two to three centimetres diameter.

Take stem pieces, 12 to 15 centimetres long with five to six leaves, from the existing creepers.

Before planting, make pits of two feet diameter, six feet apart. To each pit, add 20 to 30 pounds of a rich manure like sheep manure. Mix the manure thoroughly with the soil up to a depth of 1½ feet.

Plant two to three stem pieces in each pit. Bury about three centimetres of the stem in the ground, keeping the rest above the ground.

Construct bowers, five feet long, five feet broad and about four to five feet high, and allow the creepers to trail on the bowers.

Tondi stem pieces sprout in about a fortnight, and reach the bower in six weeks. The bearing starts from the 12th week of planting.

Early planting with the onset of the monsoon is preferable to late planting. February and March plantings are the next best.

A creeper may yield 200 to 300 fruits weighing about four to five seers. Under favourable conditions, the yield can go up to even ten seers per creeper. As the fruits are dark green in colour, you will have to search them carefully for picking. Fruits, left over, become scarlet red in colour on ripening, and are then unfit for use as vegetable.

(*Continued on page 14*)

Kurana—the 'Fertilizer Village'

Blooming crops and happy faces all round—this is what you see in Kurana today after two years of fertilizer use

By LAL KARAMCHANDANI

Twenty-nine miles from the city of Aligarh is a village that goes by the name of Kurana. As one approaches the village, Kurana in Tappal Block looks no different from any other village. It is only when one goes into the fields surrounding this village that one notices a scene far different from that obtaining in most of our villages. The fields look green, the crops healthy and the farmers full of confidence.

This is the village which has made a name for itself not only in the Block but in the whole District. And from the way it is progressing, it will be no wonder if it claims All-India fame in the near future. For this is the 'Fertilizer Village'—the village which has gone all-out for an intensive use of fertilizers.

With an average yield of 30 maunds of wheat obtained last year, Kurana has this time thrown a challenge to its neighbouring villages and to other villages in the District. "This year," as Pradhan Harcharan Lal put it, "there is no reason why we should not get 46 maunds of wheat to an acre. Let other villages try to beat us in getting a higher yield."

And to back up their challenge, as their active Gram Sevak Parshotam Lal pointed out, the villagers have purchased Rs. 12,000 worth of new implements—Olpad threshers, Singh Patelas, levelling *karahs,* soil-turning ploughs, Lucknow 5-tined cultivators, etc.

Indeed it will be hard to beat this confident village which has already won three prizes in wheat, one in

maize and one in sugarcane. But Kurana village is not satisfied with this. It wants to do even better and that is why this year it has set upon the target of 46 maunds of wheat to an acre.

How this has been achieved makes a very inspiring story.

Before 1961, Kurana village used just about a hundred maunds of fertilizers a year. Came the 'Package Programme' in 1961. And with it came new ideas. Among these new ideas, the one most improtant was the intensive use of fertilizers.

The Package Programme officials found their job easy in this forward-looking village. The farmers needed no convincing in using more and more of fertilizers. For, the Kurana farmers knew from what little they had seen and known that fertilizers are the most important factor in boosting crop-yields in the shortest possible time.

That is why in the first year itself, the fertilizer consumption jumped up to 382 maunds—nearly four times the quantity used in the previous years.

This year Kurana farmers have gone one step further. When the Package officials came to the village to prepare farm plans for individual cultivators and to offer credit in kind and cash, they had a big surprise waiting for them. They found that not a single farmer wanter credit in cash. Everyone insisted that he get the credit in fertilizers.

In the words of Mehar Pal, a 50-year old farmer : "We told the officials that we want no cash. Give us all the credit in fertilizers. For we know that by using fertilizers, we get double the yields." Or as the 35-year old farmer San Pal Singh put it : "By putting a rupee worth in fertilizer, I am able to get back two-rupee worth in increased yields."

Here is how the yields have shot up, mainly because of fertilizers. Wheat started yielding over 30 maunds

Top-dressing of wheat crop is now a common practice

Each fertilizer application is followed by irrigation

an acre as against 12 to 15 maunds previously, and maize 6 maunds a *bigha* from about 3½ maunds. Similar was the case with mustard, sugarcane, gram and potatoes.

The result—the fertilizer consumption has jumped up to nearly 550 maunds this year from 100 maunds which used to be the yearly consumption just a couple of years back.

What is true of Kurana is also true of many other villages in the Tappal Block—Viana, Siarol, Budka and Attari. In the District itself, up to November 1962, about 3,500 tons of nitrogenous and 325 tons phosphatic fertilizers had been used as against 1,790 tons of nitrogenous and 384 tons of phosphatic fertilizers in 1961. About 1,500 tons more of both nitrogenous and phosphatic fertilizers were likely to be used in the remaining part of 1962.

Things were not so smooth everywhere when the Package Programme was started two years back in the Aligarh District. For, as Project Officer Amar Singh pointed out, it took a lot of effort and time of the programme officials to break the vicious circle of poverty in the villages. Farmers would spend their taccavi loans in clearing up their old debts, and thus all the credit was as good as lost so far the real purpose —increasing agricultural production—was concerned.

Things began to change when the Package Programme came into being in the District in 1961. The Package officials persuaded the farmers that year to take 15 per cent of the loan in kind, so that at least this much could be put to a proper use. Last year this figure rose to as much as 40 per cent of the total credit given, and this year it is expected that it will go up further.

ONIONS

can give BIG profits

Most people like to take onions daily, and many farmers grow them for home or for the market. But only an experienced farmer knows how to get heavy yields and big profits from onions.

You, of course, have to manure the onion crop heavily. But this alone will not do. There is a right way of doing some more things, which you have to know to be a successful onion grower.

RAISE THE SEEDLINGS PROPERLY

Onion seed germintes successfully when stored at a temperature of 30° to 40°F during the summer months. Due to faulty storage in humid and hot places, the seed loses germination quickly. So you have to be careful about storing onion seed properly.

About 5 kilograms of onion seed is enough for raising seedlings for an acre.

For raising seedlings, make small seed-beds 12 feet long and 3 feet wide. One hundred such beds are needed for raising seedlings to plant an acre. Dig an area of about 4,000 square feet after applying three to four cartloads of well-rotted farmyard manure. Bring the land to a fine tilth by spading three or four times. Run a plank and level the surface. Divide the area into sectors of 15 feet x 12 feet. In each such sector, make five beds, 12 feet x 3 feet, providing space for footpaths and irrigation channels.

Treat the seed before sowing. Mix 'Agrosan GN.' with the seed at the rate of an ounce for every 10 ounces of seed.

Mix the seed with ash, and sow it at a depth of one centimetre in rows 4 inches apart. Cover the seeds with a thin layer of soil. Never broadcast the onion seed.

Sprinkle water gently over the beds, using a watering can with a rose. Do not flood the beds.

Water the seed-beds regularly. Avoid excessive watering. Excess of mositure causes the "damping off" disease. Spraying any copper fungicide like Bordeaux mixture 4 : 4 :50 will keep the disease in check. Mulch with a *khurpee* in-between the rows of seedlings. This will help the seedlings grow quickly.

TRANSPLANT IN TIME

Transplant the seedlings when they are four inches high. Irrigate the beds and lift the seedlings gently with a pointed iron rod, without damaging the roots. Transplant them immediately.

Use only vigorous seedlings for transplanting. Do not use overgrown seedlings. Transplant in rows six inches apart, keeping a distance of four inches between the seedlings. November to December is the ideal time for transplanting.

It will pay you to plant closely and manure the crop liberally.

MANURE ONIONS WELL

The onion crop makes a fast growth and reaches maturity in 4½ months. Therefore, you have to manure it liberally.

Use 25 to 30 cartloads of cattle manure or urban compost per care as a basal dressing.

Top-dress with ammonium sulphate or calcium ammonium nitrate at the rate of 25 pounds per acre.

For each bed of 15 feet x 12 feet, broadcast a pound of fertilizer before each irrigation. Apply once in January when the crop is one month old and again in February. This will produce vigorous growth and help good bulb formation.

Where onion is grown repeatedly in the same field, use plenty of wood ash at 5 to 10 cartloads per acre, or use potassium sulphate at 200 pounds per acre.

IRRIGATE REGULARLY

Onion needs a continuous supply of moisture for making fast growth. Good supply of moisture ensures an uninterrupted supply of nutrients to the plants. Irrigate at weekly intervals. This will be normally sufficient.

HARVEST WHEN MATURE

The tips of the onion leaves start dying in the beginning of April. The crop is ready for harvest in the beginning of May. Withhold irrigation when the bulbs are plump, with shining scales, and are fully mature. Excessive irrigation at this stage may cause the rotting of bulbs.

When the land has dried thoroughly up to a depth of six inches, dig out the bulbs. Do this in the evening.

This way, an acre will easily give you 12 to 15 tons of onions.

STORE ONIONS THE RIGHT WAY

Onions need shade and plenty of air and light during storage. Do not shut light from onions during storage.

Store in heaps not more than three feet high, in a cool, dry place. Stir the bulbs frequently so that they get exposed to air on all sides. This way onion can be kept for five to six months.

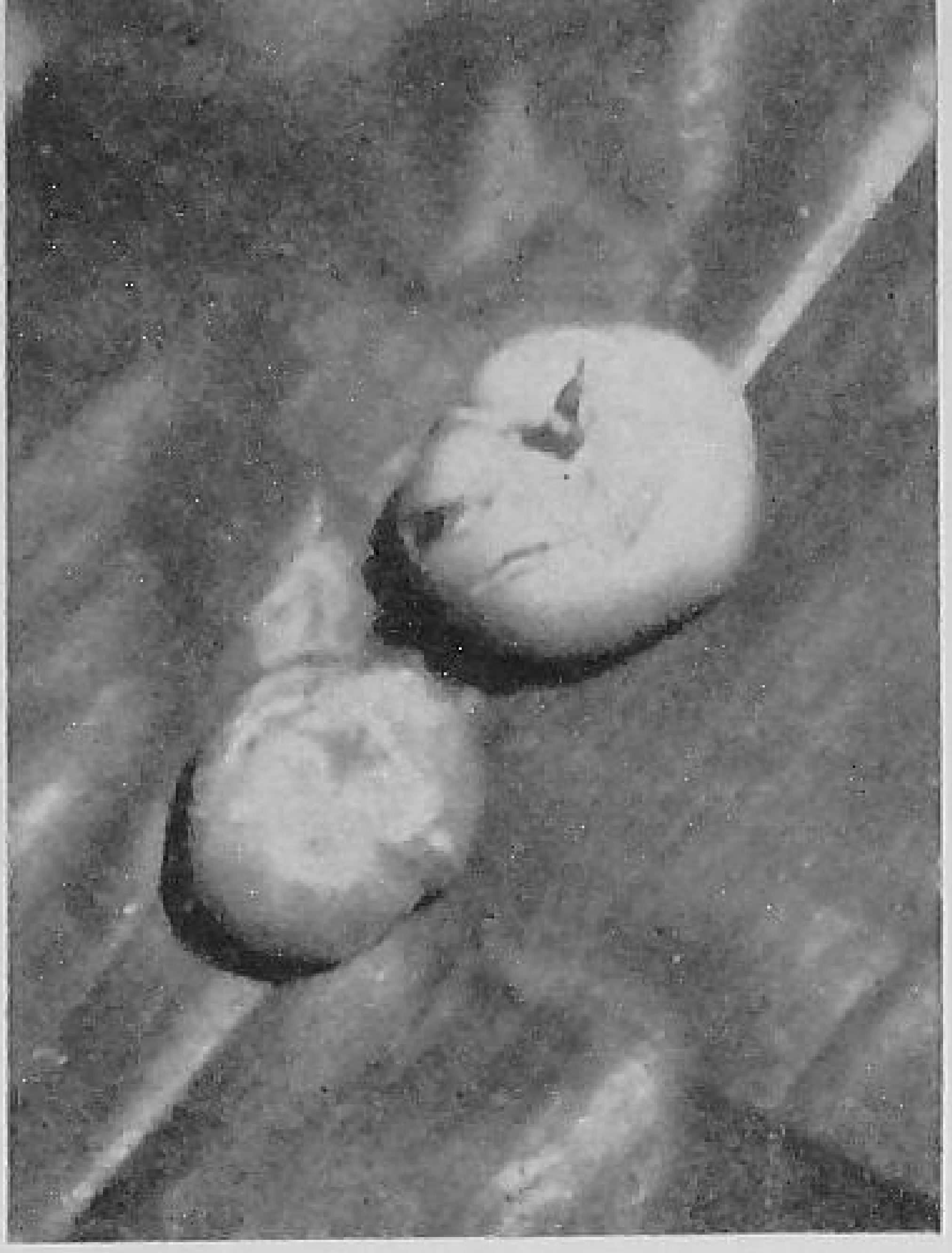
Grow onions the right way to get big profits.

Seed-treatment for 'Zaid Jowar' will benefit farmers

Farmers in Central Gujarat should sow their *zaid jowar* in the first week of March instead of the last week, as they usually do. They should also treat the seed before sowing.

Experiments at the Anand Agricultural Institute show that *zaid* (*sundia*) *jowar* sown in the last week of March, as the farmers usually do, does not give good yield. It is because its harvest coincides with the break of rains in June. Early sowing, on the other hand, results in poor germination and rotting of the seedlings. This is due to a fungus which is very active when the soil is still cold and the air is dry, as in the early part of March.

By treating *jowar* seed with an organo-mercurial fungicide like 'Agrosan GN' before sowing in the first week of March, seedling-rot can be prevented, and a good harvest obtained before the rains set in.



Tomato fruits crack and get spoiled due to boron deficiency

BORON HUNGER BRINGS DOWN YIELDS

By A. K. DUTT

You may have applied enough manures and fertilizers to your crop, and yet the crop may be hungry. Its growth may start suffering badly, and ultimately the yield become very poor, as happens in the case of a hungry crop.

How does this happen ?

Plants take food elements from the soil according to their growth requirements. If any of these elements is not present in the soil in the required quantity, plants will remain hungry and will not grow in the normal way.

Some of these food elements are needed by plants in large quantities. These are known as 'major' or 'essential' elements. Nitrogen, phosphorus and potassium are such elements. These are supplied by the manures and fertilizers you add to the soil.

There are also other elements which plants take in very small quantities. These are known as 'minor' or 'trace' elements. The shortage of any one of these 'trace' elements will cause serious losses of crops, even when there are enough of the major elements in the soil. Among these trace elements, the shortage of boron is the most common in soils.

Boron deficiency affects a large number of crops. In India, the crops commonly affected are vegetables like tomato, beet, cabbage and cauliflower, and fruits such as citrus and apple. The symptoms of boron deficiency and its cure for these crops are described below. To save losses, you should take proper measures as soon as you notice boron hunger in your crops.

TOMATO

Symptoms : The fruit becomes pitted, cracked, with corky areas, and ripens unevenly. The stem of the plant may become short, stiff and thick, giving rise to many side-branches. The leaves may be coloured variously with different tints of yellow, brown or purple. The growing points may die.

Cure : Add borax to the soil or spray its solution on the leaves. For mixing with the soil, use a dose of 3.617 to 5.425 kilograms (8 to 12 pounds) per acre. Use a higher dose for heavy soils. Mix it with manure or fertilizer or soil, and then add to the soil. For spraying, use 0.3 to 0.4 per cent water-solution at the rate of 225 to 270 litres (50 to 60 gallons) per acre. You can prepare the solution by mixing 56 to 70 grams (2 to 2½ ounces) of borax in 18 litres (4 gallons) of water. Spray either in the nursery or 3 to 4 weeks after transplanting.

BEET

At first, the young leaves fail to develop normally, which later on turn black and die. The newly grown buds also die out. A brown decay may set in around the shoulder of the root. The disease is associated with alkaline soil conditions.

For cure, apply borax mixed with manure or a fertilizer in the soil, at the rate of 9.42 kilograms (20 pounds) per acre.

CABBAGE AND CAULIFLOWER

The symptom appears as brown necrosis in the pith of the stem or core. In cauliflower, the disease is

known as 'brown rot.' Water-soaked concentric areas develop on the stem and curd, which may afterwards turn into rusty brown patches on the curd. The affected crop tastes bitter.

Apply 9.42 kilograms (20 pounds) of borax per acre to the soil. In the case of cabbage, add boric acid at the rate of 2.261 kilograms (5 pounds) per acre to the soil, or spray the foliage with 0.2 per cent water-solution.

CITRUS

The typical signs of boron hunger in citrus are enlargement, corking and splitting of the veins and midrib of the leaf. The surface of the leaf blade also becomes corky and brittle. The veins look lustreless, bronzed, slightly yellowish, and tend to curl towards the midrib and at the lower surface, and fall out. The affected fruits may become small, malformed and possess brown mucilaginous discolouration.

Apply borax at the rate of 452 grams (1 pound) per tree, mixed with manure which you apply to the trees. You may also, in addition, spray the leaves thoroughly with a solution of borax at the rate of 28 to 56 grams (1 to 2 ounces) added in 13.5 litres (3 gallons) of water.

APPLE

The most characteristic symptoms develop on the fruit. The newly grown fruits show water-soaked areas on the surface, which become brown and hard later on. Similarly, the inner core gets corky and splits. The flesh or only the core gets spotted with dead and brown tissues. Sometimes, when the symptoms appear early, the fruits become deformed, and fall off.

Besides these symptoms on the fruits, other types of symptoms develop on the bark, leaves and twigs. The bark becomes thick, rough and cracked. The newly developed leaves become curled, and fall out. Die-back of the branches and twigs is also noticed. This way the yield is reduced both in quality and quantity.

The control measures are the same as in the case of cracking of tomato. However, the appropriate time of spraying with borax solution is before new flush growth commences or after petal-fall.

TOO MUCH OF BROODINESS IN POULTRY BIRDS IS NOT GOOD

Poultry birds, some time or the other, get broody. Broodiness, in fact, is natural in poultry birds. But too much of it is not good.

In a flock where the birds remain broody for too long a time, the egg production will be low. You cannot possibly cull out all those that get broody. Hence, you have to check broodiness.

The amount of broodiness varies in different breeds. Birds of the White Leghorn breed usually show less broodiness than others. Cornish breeds show the maximum.

Apart from this, broodiness may be caused by other factors such as darkness and too much of heat in poultry houses. In one experiment, a temperature of 90°F, darkness and presence of chicks induced broodiness even among non-broody layers and pullets too young to show broodiness.

Bad feeding, bad management, presence of vermines and parasites and delay in clearing eggs from nests also increase broodiness.

To reduce broodiness among your birds, you must remove these causes.

Also do not use a cock from broody lines, nor keep in a breeding pen hens from a family having high amount of broodiness.

GROW WATER-MELONS THIS SUMMER

By
C. N. N. MURTHY

Water-melon is a popular delicacy during the hot summer months. It is a good cash crop for farmers, and will also make a nice crop to grow in one's home garden for one's family. Water-melon grows easily and needs very little care.

You can grow water-melon anywhere in India, up to an elevation of 5,000 feet above sea level. Drought-resistance is its special virtue, and you can grow it in hot and dry regions if there is moisture. It does not, however, thrive under frost and water-logged conditions. In humid regions, the yield is reduced by foliage diseases.

SOIL

Deep, well-drained, rich sandy loams, exposed to the sun are the best for water-melon. You can easily grow it on moist river beds, garden soils and on slightly slopy and gravelly soils. Water-melon will come up well even if the soil is acidic.

VARIETIES

There are quite a few improved varieties of water-melon recommended by the Agricultural Department. Select any one of the varieties for sowing.

W. 21 and *24* are early-maturing varieties and the fruits are sweet. *No. 1* and *No. 21* which have been tried in the Punjab are also worth a trial elsewhere. *No. 1 (W. 1)* has a thick rind and flesh of deep scarlet colour. It can stand rough handling and transportation. Fruits are round and weigh 8 to 12 pounds each. *No. 21 (W. 21)* has a thin and brittle rind and does not stand transport. It has a sweet flesh and less number of seeds. The fruits weigh 10 to 12 pounds each. This variety is particularly recommended for home gardens.

Water-melons are in great demand in the market during summer months

New Hampshire Midget is a garden variety imported from America. The fruits are small, about two to three pounds each, and are very sweet.

Ashahi Yamato is a good Japanese variety and the fruits weigh 8 to 10 pounds. You can get seeds of these two varieties from the Head of the Division of Horticulure, Indian Agricultural Research Institute, New Delhi-12.

MANURES AND FERTILIZERS

Prepare the land well. Apply 10 cart-loads of well-rotted manure per acre. If you can raise a green manure crop, it will be an ideal basal dose of manure.

Apply a fertilizer mixture containing 50 pounds nitrogen, 50 pounds phosphoric acid and 100 pounds potassium per acre. If you cannot get all these fertilizers, give at least 1½ maunds of ammonium sulphate per acre as a top-dressing, when the crop is a month old.

SOWING TIME AND SEED-RATE

If you are in Delhi or Uttar Pradesh, you can sow water-melon in February when the temperature starts rising. If you happen to be in central India sow it from February to June. Water-melon can be sown twice in the hill regions of north India, from the middle of Februray to the end of March and the second time from the middle of June to the end of July. In case you are in south India you can sow any time from the middle of January till the end of March. But generally two sowings, one in January-February and the other in June-July can be done all over the country.

You need two to two and a half seers of seed to sow an acre.

METHOD OF SOWING

Water-melon can be sown in pits 2 feet by 2 feet by 2 feet made in rows 5 feet apart. Expose the pits to the sun for some time and later fill up with two or three baskets of well-rotted farmyard manure per pit. Mix the manure well with the soil.

You can grow water-melons in well-prepared levelled beds or in raised beds at a distance of 6 to 8 feet with a two feet wide trench in-between to facilitate watering.

Sow the seeds one to two inches deep. Allow a distance of three feet between two plants in the case of raised beds. If you sow in pits or on hills of trenches, you can plant three to four seeds in each pit or hill. Sowing sprouted seeds ensures better germination.

Provide *sarkanda* coverings to save the young plants from cold or frost. As soon as the weather warms up, remove the *sarkanda* coverings and spread the *sarkandas* around the pits to cover the sandy beds. This will protect the young and tender foliage of water-melon from the scorching heat of summer.

IRRIGATION

The crop needs moisture for germination and in the early stages of growth. So irrigate the crop every fortnight till the beds are covered with the vines and fruits have set. Afterwards irrigate the crop sparingly, once every three weeks. When the fruits start ripening, stop watering.

DISEASES AND PESTS

The foliage of water-melon is attacked by downy mildew where humidity is high. Due to the disease, yellow spots develop on the upper surface of the leaves, while the lower side appears purplish. The affected vines produce fruits of inferior quality.

You can control the disease by a thorough dusting with fine sulphur.

Pumpkin beetles are the most serious pest attacking the crop. Beetles are a great killer of the germinating seedlings during March-April.

You can control the pest by spraying lead arsenate (2 ounces in 50 pounds of water). Dusting with sodium fluosilicate and ash, mixed in the ratio of 1 : 8 early in the morning is also highly useful. You require about one to two pounds of the insecticide for dusting an acre.

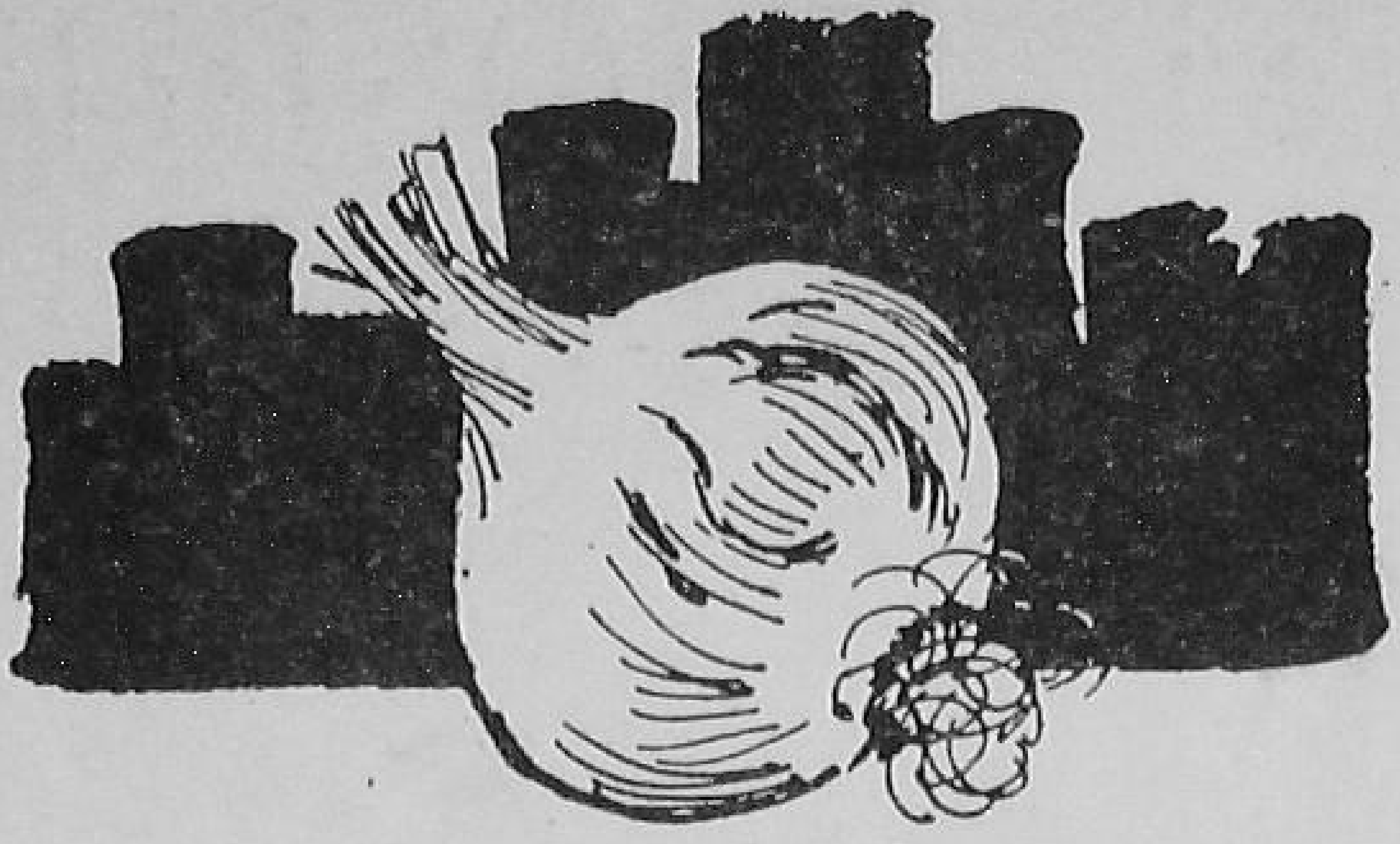
SUMMER VEGETABLES

(*Continued from page* 5)

Often, minute black insects called aphis are seen on the growing tips of tender branches of *tondli*. Spray tobacco decoction, 'Endrin' or 'Parathion' at two cubic centimetres mixed in two gallons of water, to control this insect.

Tondi can be eaten raw like *kakri*, or cooked as a vegetable. Usually it fruits all the year round. But during the winter months from November to February, the yield comes down. In winter, you have to protect the creeper from cold winds and frost.

Once in three years, change the site and raise a fresh crop.



GROWING GARLIC IS SIMPLE AND PAYING

There is everywhere a demand for garlic. You can start its cultivation with a small sum. Garlic grows quick and pays quick.

Raising garlic is a simple job too. And this is the way it is to be done.

GROWING SEASON

Garlic grows under a wide range of climatic conditions. It cannot, however, stand too hot or too cold a weather. The crop is, therefore, usually sown in winter when it is not severe, and is harvested when the hot season sets in.

In north India, the crop is planted in September-October in the plains and in March-April in the hills. In south India, it can be sown from August to November. In fact, in certain localities it can be planted twice, in early May and in October.

PREPARATION OF LAND

Select a well-drained loamy soil, rich in humus. Never raise garlic on heavy soils. In such soils, the bulbs become deformed and small, and harvesting becomes difficult and costly.

Bring the soil to a fine tilth by repeated ploughings. Add about 20 tons of well-rotted farmyard manure or compost per acre. Level the seed-bed by planking.

PLANTING MATERIAL

There is no special variety of garlic, but *Fawari* and *Rajalle Gaddi* are two favourite types in south India. They have fairly big bulbs.

You can plant garlic cloves or bulblets. Detach the bulblets from the bulbs by hand. You will need about 300 to 500 pounds of such bulblets to sow an acre. The outer bulblets are believed to give higher yield than the inner ones.

PLANTING

You can plant garlic by dibbling, furrow planting, or even by broadcasting. For dibbling, divide the field into small plots so that you can irrigate them easily. Dibble the cloves two to three inches deep, with their growing ends upwards. Place the cloves three inches apart from each other in rows six inches apart. Cover them lightly with loose soil. Give a light irrigation.

For furrow planting, make furrows six inches apart with a hand hoe or a cotton drill. Drop the cloves by hand three to four inches apart in the furrow. Cover lightly with loose soil, and give a light irrigation.

If you use the broadcasting method, scatter the cloves evenly by hand over a level seed-bed. Cover them by harrowing. Divide the field into small plots for irrigation. Give a light irrigation immediately after sowing. After about three or four days, press down the uncovered cloves into the soil, and give another irrigation.

IRRIGATION

After the plants have come up, irrigate the field every 10 to 15 days till the season warms up. You shall have to irrigate more frequently if the weather is a little hot. See that there is sufficient moisture in the soil during the growing season.

Irrigate sparingly when the bulbs start ripening. Give the last irrigation two or three days before harvesting. This will make the soil soft, and harvesting will be easy.

MANURING

Apply 200 pounds of ammonium sulphate per acre at the time of planting.

(*Continued on page 18*)

AMMONIUM PHOSPHATE

—a 'two-in-one' fertilizer

By A. K. DUTT

Ammonium phosphate is your 'two-in-one' fertilizer. It contains both nitrogen and phosphorus. It is more economical, and is more beneficial to crops than using two separate fertilizers.

The soil needs both nitrogen and phosphorus for good crop growth. To supply these to your soil, you may have been buying two fertilizers—a nitrogenous fertilizer and a phosphatic fertilizer—and applying them separately or as a mixture to the soil. This takes more time and labour.

With ammonium phosphate, you can get both the plant food elements in one fertilizer.

BETTER RESULTS

Ammonium phosphate contains 16 per cent nitrogen and 20.5 per cent 'available' phosphoric acid. There is no fertilizer mixture in the market that has the same amount of plant food as ammonium phosphate, quantity to quantity.

Ammonium phosphate is available in granular form. Due to this it gives better results than any other phosphatic fertilizer. This is because :

* more of phosphate becomes available to the growing crop than when phosphate is applied in a powdery form such as superphosphate,
* loss of nitrogen due to leaching is less, and
* it is easier to drill.

You can use ammonium phosphate to a wide range of soil conditions—acid, alkaline or neutral—and to almost all crops.

Ammonium phosphate contains sulphur too, and is, therefore, beneficial to soils deficient in sulphur. But do not use it in soils which cause sulphide injury to the paddy crop. Use it on calcareous soils when irrigation can be provided. If your soil is highly acidic, lime it periodically, to get the full benefit from the application of ammonium phosphate.

Ammonium phosphate can penetrate deeper into the soil than superphosphate, and is thus available to a wider root zone of plants.

HOW TO APPLY

Apply ammonium phosphate only as a basal dressing.

For wetland paddy, apply the fertilizer at the time of puddling the field prior to sowing or transplanting.

In the case of dryland paddy, and wheat, cotton, sugarcane, potato and vegetables, apply it during the final tillage operations. Consult your Agricultural Officer for the specific dose of the fertilizer to be used for each crop for your area.

If a particular crop needs nitrogen over and above the amount already supplied by ammonium phosphate, you can use some other nitrogenous fertilizer as a top-dressing.

You can drill ammonium phosphate, or mix it with the seed and dibble it behind the plough. The safe dose for mixing it with wheat or directly-sown paddy will be 100 pounds per acre.

Never apply ammonium phosphate as top-dressing, for the phosphate part of it will be of no use to the standing crop.

HOW TO HANDLE

Ammonium phosphate is available in small bags of 50 kilos.

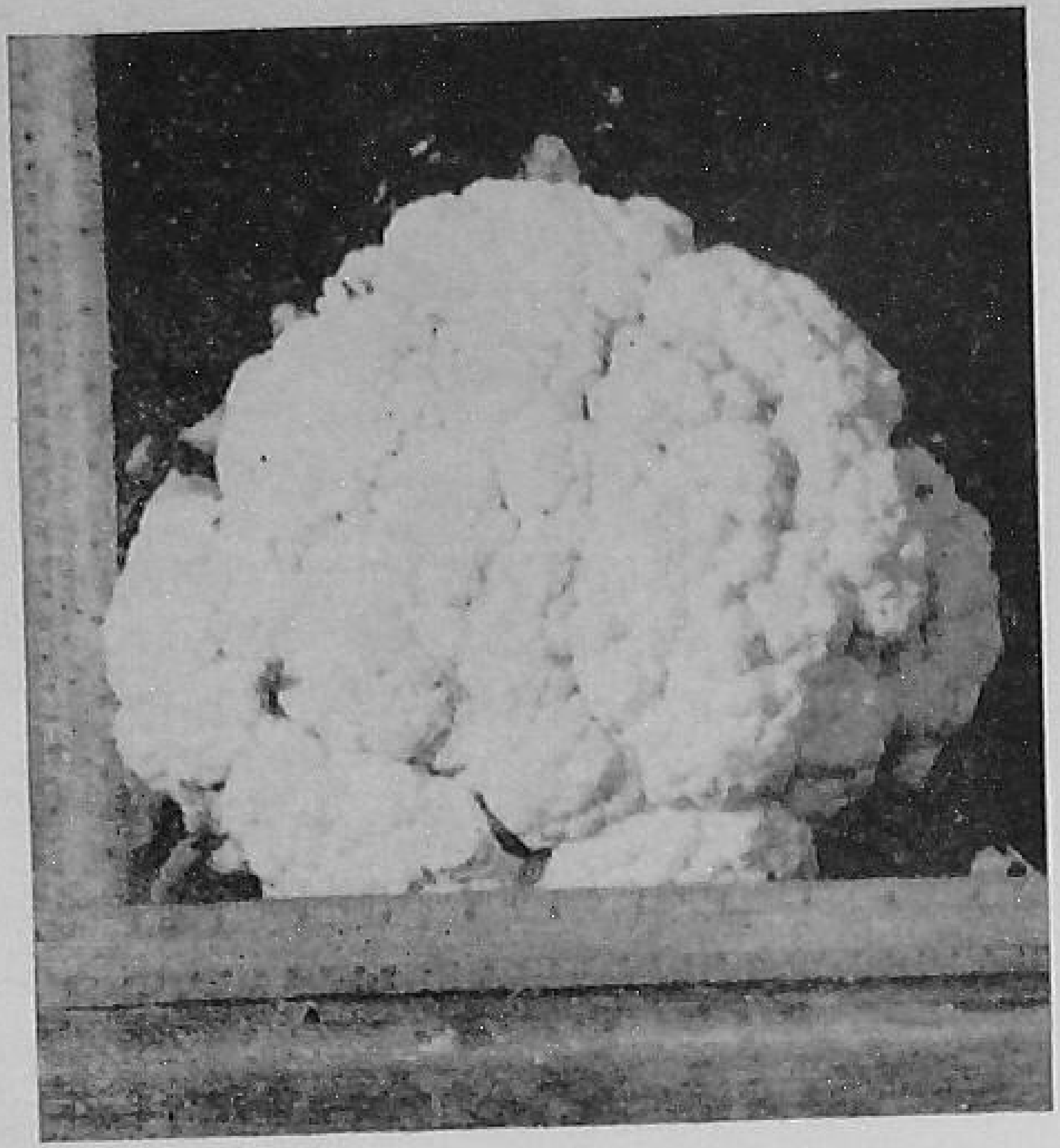
When you need the fertilizer, open the polyethylene bag carefully at one end. Take out the quantity you need, and immediately seal the bag by giving as many folds as possible to the emptied portion. This will keep the fertilizer in good condition. Keep the fertilizer bags in a well-ventilated, cool and dry place.

And remember :

Not to open the bag until you need the fertilizer.

Not to allow the bags to come into contact with moisture.

Not to keep extra weights on the bags.



King Cauliflower

By D. MUTHUSWAMY

Crowning a heap of unusually big cauliflowers, a real king-size cauliflower arrested my attention, while marketing in the Vinay Nagar vegetable market in New Delhi.

I asked the vendor to weigh this giant cauliflower.

The vendor put the flower on the right pan of the balance and placed a five-kilogram weight on the left pan. The balance beam was still inclining towards the flower. It took another 18 grams to bring the beam to an even balance.

Enamoured of its size and weight I purchased this cole giant. At home I measured the diameter of the flower. It was eleven inches !

The producer of this masterpiece cauliflower crop was worth a visit, I thought. The vendor who had sold me the flower helped me to meet farmer Tota Ram in his vegetable field in South Delhi.

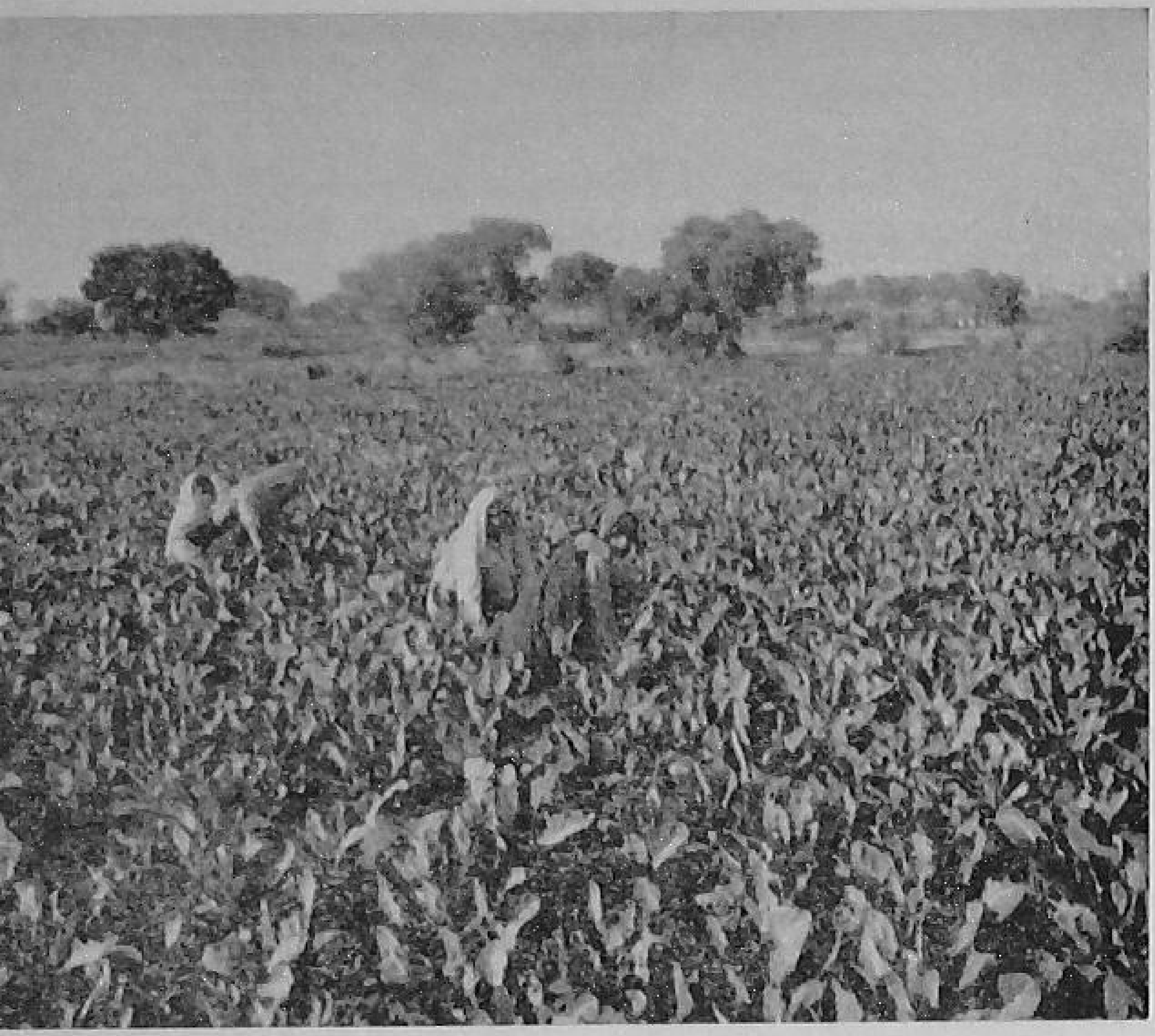
Tota Ram has 60 *bighas* of land under vegetables, mostly sown to cauliflower. A part of the field was being harvested. Standing neck-deep amidst tall plants nine people were taking out the flowers. Every flower was white as mable, firm and of a size out-of-the-ordinary. In another part of the field the crop would be ready for harvesting during the subsequent week. In the third part of the field, weeding operations among tender plants were going on.

Tota Ram explained to me how he raised his cauliflower crop.

He gave nine ploughings with a *desi* plough in the month of *Jyeshta*. He applied four lorry-loads of municipal manure per *bigha*. The seed he used was from a reputed seed dealer in Meerut.

In the interspaces available I saw a lush crop of *palak* and *radish*. This intercropping, explained Tota Ram, helped him sell some vegetables before his cauliflowers matured.

Tota Ram in his cauliflower field



Weeding operations in the late cauliflower crop

Tota Ram does not use fertilizers. The water from his well is brakish, and the chemical fertilizers, 'white manure' as he calls them, do not suit the soil when irrigated with this water.

A diesel-oil pump helps him irrigate his fields from his well. Every four days he irrigates so as to keep the soil moist.

He has always used pesticides liberally, which he gets from the Agricultural Officer at Mehrauli. He did not know the names of the pesticides he used. "Whether I know their names or not, the pests know it would be certain death for them if they came near my crop," said the old farmer laughing under his greying moustache.

Tota Ram attributed his success in producing cauliflowers to his vigilance against weeds—'those pick-pockets of plant food,' as he liked to call them. "As I intercrop my cauliflower with other vegetables I cannot afford to lose manure to these poachers," emphasised the old man.

"Come to my field next year. You will have bigger surprises," said Tota Ram confidently, as he folded his hands to me to say good bye.

GROWING GARLIC IS SIMPLE AND PAYING

(*Continued from page 15*)

A month and a half after planting, top-dress the soil with another 250 pounds of ammonium sulphate.

WEEDING

Give two or three weedings during the first two months of growth before the crop starts bulbing. If you find any weeds afterwards, pull them out by hand to avoid root injury to the plants.

DISEASE CONTROL

There are very few diseases and pests of the garlic crop.

Occasionally you may find the blast disease attacking the crop. Dark-brown spots with ash-coloured centres develop on the leaves due to the blast disease.

Sometimes a whitish haze appears on the leaves of garlic. This is caused by mildew. The leaves become yellow and may even die.

Spray Bordeaux mixture (5 : 5 : 50). This will keep the crop free from these diseases.

Thrips may attack the crop. Due to the attack, the plants dry up and become mottled. The leaves of the affected plants become tube-like. Spray the crop immediately with DDT (0.1 per cent), or dust with 'Lindane' (0.65 per cent) at 20 to 25 pounds per acre.

HARVESTING

Harvest when the top of the plants turn yellow and show signs of drying up. Lift the bulbs, free them from earth, and tie the leaves at the top. Dry the bulbs for three to four days in shade before storing them.

You can store the bulbs by hanging them on bamboo sticks or by keeping them on dry sand on the floor. See that the room is well-ventilated and the floor is dry. Remove the tops before taking the bulbs to the market.

You can get a yield of 2,500 to 10,000 pounds of bulbs per acre.

TEN TIPS
FOR
CANE GROWERS
OF
ANDHRA PRADESH

Sugarcane growers in Andhra Pradesh who are now planting their next crop, will do well to bear in mind the following tips. These are especially suited to conditions in Guntur, Krishna, East and West Godavari, Vishakhapattanam and Srikakulam areas of Andhra Pradesh.

Many farmers have been able to get high yields by following these tips.

Sugarcane crop propped by the trash-twist method

A bumper sugarcane crop—result of proper cultivation

One: Plant in trenches. Dig the trenches soon after the harvest of the previous crop. They should be 8 inches deep and 16 inches wide. The distance between the centres of the two trenches should be 40 inches. The width of the ridge between the trenches should be 24 inches.

Next, loosen the soil of the trenches to a depth of four inches, and allow it to weather. Apply farmyard manure or compost at 20 cartloads or 10 tons per acre in the trenches. Mix the manure well with the soil. Make irrigation channels at a higher level than the trenches.

If, however, you cannot take up trench-planting, plant sugarcane in furrows 32 inches apart.

Prepare the land well. Before planting, allow water into the furrows. To drain out excess water, form drainage channels 40 feet apart at a lower level than the furrows. Connect these channels to the main drainage channel formed around the field.

Two : Use only improved varieties. *CO. 997* and *CO. 975* are suitable for factory areas. *CO. 975* and *CO. 419* are good for jaggery-making.

Three : Select good planting material. Take it from any healthy crop or from a good crop raised in June-July. Do not take planting material from a ratoon crop, or from a field in a low-lying area.

Use only the top one-third portion of the canes for planting. Cut the canes into setts with three buds. You will need 16,000 such setts for planting an acre.

Four : Plant your sugarcane crop in December or January.

Plant the setts in trenches by pressing them into the moist soil, keeping the buds towards the side. This is important.

Four to five days after planting, give a light irrigation. When the soil comes to condition, hoe it. Take care to avoid damage to the setts. Thereafter, irrigate once a week.

Fill the gaps, if any, within a month of planting.

Five : Feed the crop with 150 pounds of nitrogen per acre in two doses. Give the first dose a month after planting and the second one at two months.

Apply the fertilizer in small pits, four inches deep, dug near the plants. Cover them with soil.

You can reduce the amount of the nitrogen you apply by 50 pounds, if you are green-manuring your crop. Raise *Sesbania,* sannhemp or *dhaincha* between the rows and bury the plants into the soil in June, while earthing up.

Six : In June, earth up the canes with soil dug up from the trenches between the cane rows. If you have raised a green manure crop, bury it at this time. In August, remove suckers.

Seven : Deepen the drainage channels to draw out excess water. If there is water-logging in the field, the crop will grow poorly and flower early.

Eight : Prevent lodging by propping. The yield of cane and purity of juice will be the best in a standing crop.

Follow the trash-twist method for propping. Make a rope by twisting the sugarcane leaves with palmyrah fibre. Pass the canes through the rope. In heavy crops, it will be necessary to provide two to three trash twists, supported by bamboos at every eight to ten feet.

Nine : Check pests. Take timely steps to control the many pests that attack the sugarcane crop.

*Termites can be checked if you apply 5 per cent BHC at the rate of 25 pounds per acre in trenches before planting the setts.

A heavy crop supported by bamboos to prevent lodging

*The early shoot-borer generally attacks the planted crop in March-April. Spray 0.032 per cent DDT at one ounce in one gallon of water, or 0.2 per cent 'Endrin' at one ounce in six gallons of water in the fourth and sixth week after planting.

*For pyrilla, dust 40 pounds of 5 per cent BHC per acre.

*Mealy bugs appear in groups and remain hidden underneath the leaves. Spray 0.25 per cent or 0.01 per cent BHC.

*Check grasshoppers by dusting 25 pounds of 10 per cent BHC per acre.

Ten : Control diseases.

*The smut disease generally affects a ratoon crop. Remove the affected shoots and burn them.

*The pineapple disease usually attacks the setts after they are planted, and causes them to rot. Dip the setts in 'Ariton' 0.05 per cent at one ounce in 2½ gallons of water, before planting.

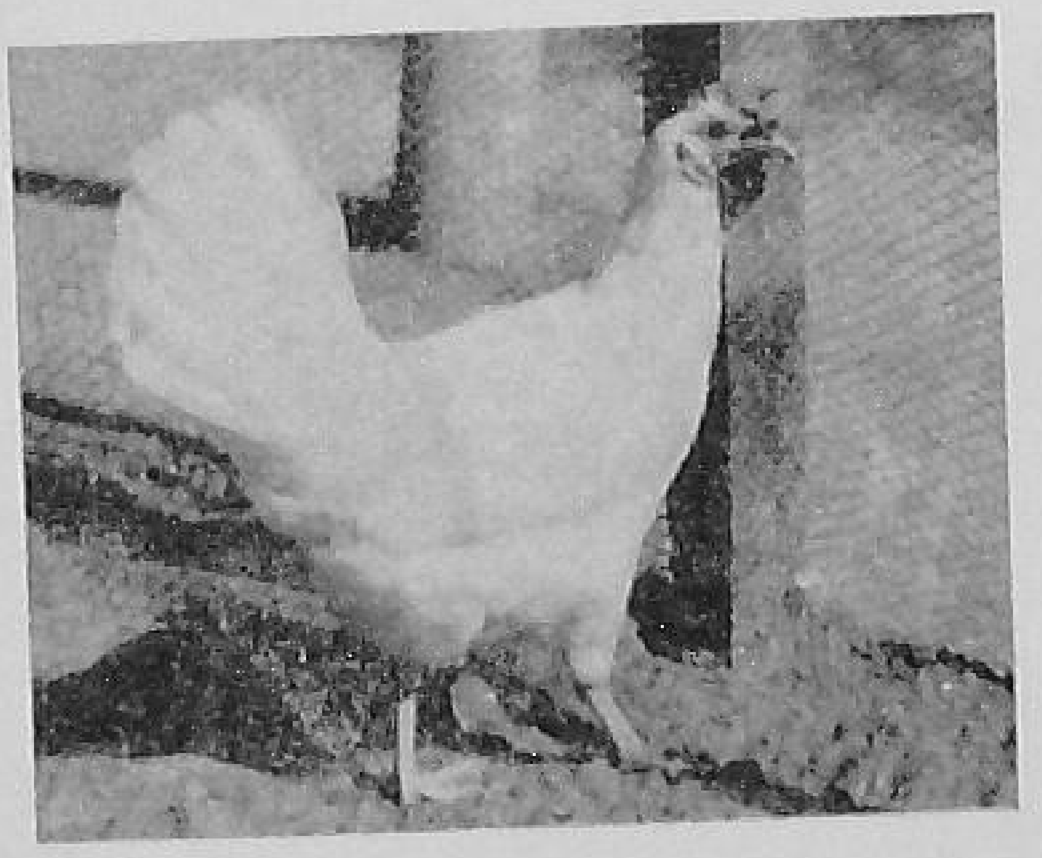
Start acting on these tips right now, when you are planting for the next year's crop. If you do that, you will gather a rich harvest.

TO OUR SUBSCRIBERS

FROM MARCH ONWARDS 'EXTENSION' WILL APPEAR AS **'INTENSIVE AGRICULTURE'** IN ITS NEW FORM. IT WILL NOT ONLY CONTINUE TO CATER PRACTICAL INFORMATION ON IMPROVED AGRICULTURE, BUT WILL ALSO GIVE YOU NEWS ON AGRICULTURAL DEVELOPMENT IN THE COUNTRY AND INTENSIVE AGRICULTURAL WORK DONE IN SELECTED AREAS.

THE DIRECTORATE OF EXTENSION TAKES PLEASURE IN ANNOUNCING THAT THE 'PACKAGE PROGRAMME NEWS' THAT WAS BEING BROUGHT OUT SEPARATELY FOR A LIMITED NUMBER OF READERS WILL NOW BE MERGED WITH 'INTENSIVE AGRICULTURE' AND WILL HELP INFORM YOU EVERY MONTH ON ACTIVITIES AND DEVELOPMENTS IN THE INTENSIVE AGRICULTURAL DISTRICTS.

—EDITOR



White Leghorn

Rhode Island Red

Why you should keep IMPROVED BIRDS and not 'DESI' ONES

The cost of purchasing and maintaining ten *desi* hens and one cock per year is Rs. 155. The income from the sale of eggs and resale of birds after the laying period will be Rs. 140. Thus there will actually be a loss of Rs. 15.

In the case of improved birds like Rhode Island Red or White Leghorn, the cost of purchasing ten hens and one cock and maintaining them will be Rs. 250 to Rs. 275 per year. The income from the sale of eggs and resale the birds will be Rs. 430 to Rs. 440. There will thus be a gain of Rs. 165 to Rs. 175 per year.

Grow all your vegetables in your own village

By N. B. MULVANI

With a small piece of land and an hour or two spent daily in cultivation, each farm family can have enough of vegetables and fruits all the year round.

Vegetables and fruits are energy-giving food, and their consumption by our people is very low. They are bulky and perishable, and because of the high cost of transport, many of them are too dear for the common villager.

Raising your own vegetables and fruits will mean a saving in the money you spend on buying them. You will at the same time do a service to the nation, as the vegetables and fruits which you would have purchased otherwise, can be spared for our jawans.

A VILLAGE PLAN

A village has, on an average, 120 families with about 800 persons. Each person needs about eight ounces of vegetables and four ounces of fruits per day. The yearly requirement of the entire village would thus amount to 1,800 maunds of vegetables and about 800 maunds of fruits. This you can raise in your village itself if you all plan together and work for it. Here is a scheme which will help you work it out.

Season	*Vegetables* (Maunds)	*Fruits* (Maunds)
Winter (October to March)	900	200
Summer (April to June)	300	400
Rainy season (July to September)	600	200
Total	1,800	800

To produce 1,800 maunds of vegetables, an area of about 16 acres will be enough.

You can put the area under vegetables in the different seasons according to the following plan :

WINTER	*Area* (Acres)	*Produce* (Maunds)
Potato or Sweet potato	2.0	400
Onion	1.0	200
Tomato	2.0	75
Knol khol	0.5	75
Turnip	0.5	50
Cauliflower	0.5	50
Peas	1.0	25
Palak (Indian spinach) and other leafy vegetables	0.5	25
Total	8.0	900

SUMMER		
Pumpkin	0.25	20
Ash-gourd (*petha*)	0.25	20
Cucumber (*khira*)	1.00	20
Bitter gourd (*karela*)	0.50	20
Bottle-gourd (*lauki*)	2.00	100
Ribbed gourd	0.50	20
Cowpea (*lobia*)	0.50	20
Lady's finger	1.50	40
Squash-melon (*tinda*)	1.00	20
Amaranthus and other leafy vegetables	0.50	20
Total	8.00	300

RAINY SEASON		
Lady's finger	5.0	200
Brinjal	2.5	150
Ribbed gourd	2.0	50
Bottle-gourd	1.0	50
Bitter gourd, snake gourd, etc.	2.5	150
Total	13.0	600

You can sow the vegetable crops to suit your taste and local conditions. Similarly you can increase or decrease the area to be put under vegetables according to the population of your village.

FRUITS

The fruit requirement of the village can be met from the ten acres of the land put under fruit trees. This may be done as follows :

Fruit	*Number of plants*	*Area* (Acres)	*Produce* (Maunds)
Banana	600	1	200
Orange (sweet or loose-skinned)	120	2	40
Acid lime and lemon	120	2	80
Guava	120	2	80
Papaya	600	1	200
Miscellaneous fruits like *aonla, ber, kamrak* and *bilimbi*		2	200
	Total	10	800

Each family can plant 5 trees each of banana and papaya and one each of the acid lime or lemon, orange and guava, to meet its requirements of fruits. If this is not possible, half to one acre can be earmarked from a dozen progressive farmers for raising orchards. Some of the Panchayat waste-lands can be used for planting *ber*, gooseberry (*aonla*), wood-apple, etc.

SEED REQUIREMENTS

To grow your own vegetables you will require to have good seeds.

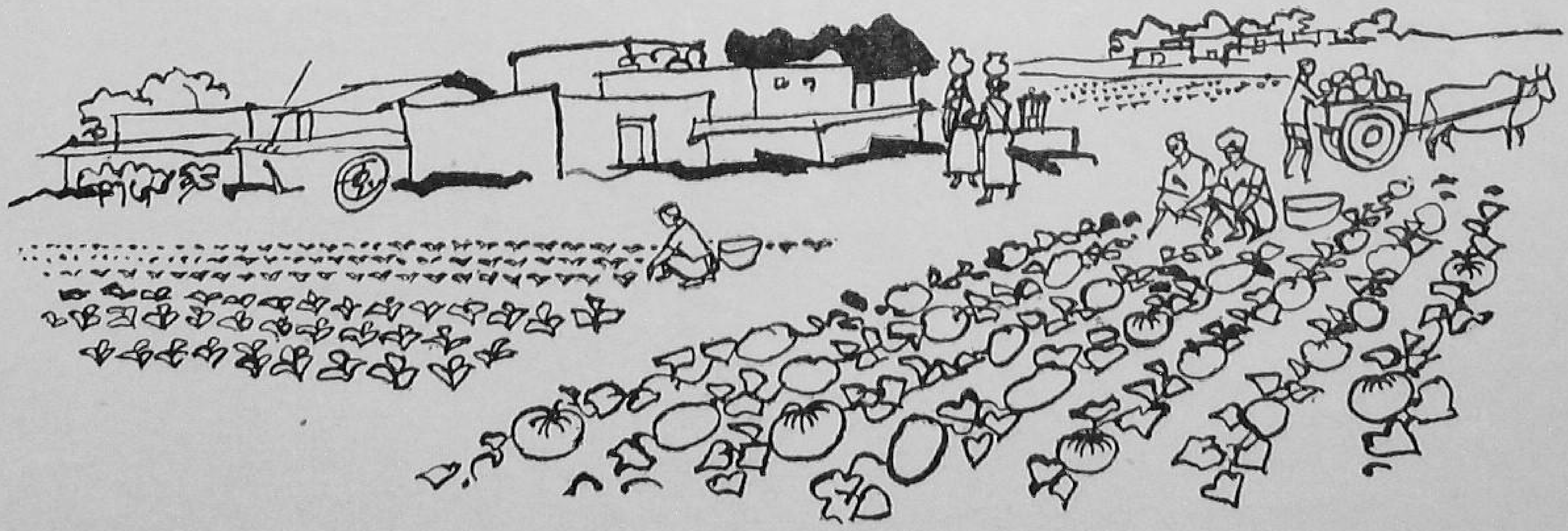
Except for potato and cauliflower, you can produce the seed of all the vegetables in the village itself.

The requirement of seed for one village is estimated below :

	Kilograms
Peas	40
Cowpea (*lobia*)	30
Amaranthus (*chaulai*)	10
Indian spinach (*palak*)	10
Lady's finger (*bhindi*)	65
Onion	10
Squash melon (*tinda*)	10
Ribbed gourd	8
Bitter gourd	10
Bottle-gourd	15
Brinjal	2
Cucumber	2
Tomato	4

This is a broad outline of a plan to make our villages self-sufficient in vegetables and fruits. All our village Panchayats, Extension workers and Rural Youth Clubs can spare some time to work for the fulfilment of this plan.

Our patriotic farmers and Extension workers can give this project a fair trial in this period of National Emergency.



MORE OILSEED PRODUCTION IN THE THIRD PLAN

One of the top-priorities in crop production now-a-days are the oilseeds. The production target for oilseeds has been fixed at 98 lakh tons at the end of the Third Five Year Plan. This means increasing the present oilseed production by about 50 per cent.

The Central Government has taken the following measures to step up oilseed production in the country.

INTENSIVE CULTIVATION

The principal oilseed-growing tracts are being demarcated by the State Governments, and intensive production of oilseeds on the lines of the "package programme" is being taken up in such areas.

Groundnut : The number of the package units of 20,000 acres each under intensive cultivation of groundnut is being increased from 8 to 24. After a year, the progress of work will be reviewed and the programme will be further intensified, so as to increase the number of the package units to 50. The coverage in each unit will also be accelerated both under irrigated and assured-rainfall areas. Under the programme, it is proposed to increase production of groundnut by about 40 per cent by concentrating all efforts and by applying the latest scientific techniques.

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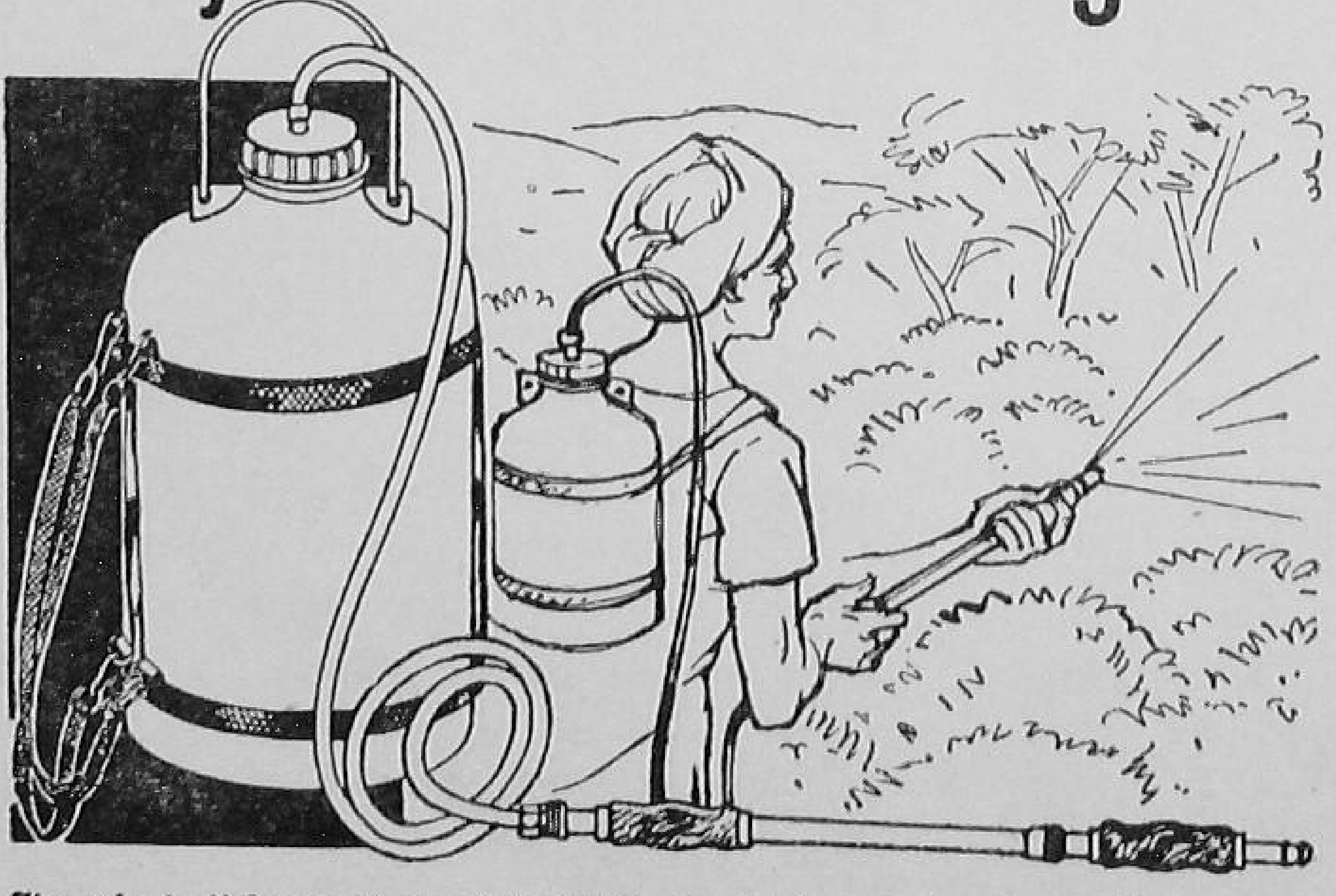
do you have four bighas land?



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Sesamum : The Government of Madras has of its own started a package scheme of sesamum on an additional area of 60,000 acres. The expenditure on this scheme will be shared both by the Centre and the State Governments.

Minor Oilseeds : Besides the five major oilseeds, the country also produces significant quantities of minor oilseeds like niger, safflower, tobacco-seed and cotton-seed, in addition to a large variety of other oilseeds obtained from trees like *neem, mahua, karanya khakan, sal undi* and *kusum*. Efforts are being made to augment the supply of vegetable oil, through increased collection and crushing of non-edible oilseeds so as to release more edible oil used for soap and other industries. This way more vegetable oil will be made available for internal use and for export.

FERTILIZER ALLOCATIONS

Additional quantities of fertilzers are being allotted for oilseed. The increase will be over and above the normal allotment of fertilizers for the states. Special allotments of fertilizers to oilseed-growers will be made by the State Governments out of their total allocations.

SEED

The Government of Punjab has formulated a seed multiplication scheme for rape and mustard. The scheme is proposed to be started from April 1963.

A model scheme for distribution of castor seed is under preparation by the Indian Central Oilseeds Committee.

For establishing seed farms in the states, the Central Government will provide the required financial assistance. It will also share the subsidy given by the State Governments for groundnut on a 50 : 50 basis.

PLANT PROTECTION

Special emphasis will be laid on plant protection measures by the State Governments. Twenty-five per cent of the cost of pesticides and plant protection equipment will be borne by the Centre without insisting on an equal amount of subsidy from the State Governments.

The services of the aerial unit of the Directorate of Plant Protection, Ministry of Food and Agriculture, will be available to the State Governments for aerial spraying of oilseed crops in large blocks. In case of non-availability of such a service, and if the aerial spraying on oilseeds is done through private firms, the Central Government will bear 75 per cent of the expenditure on this account, and 25 per cent will be borne by the State Governments.

SUBSIDIES

The Central Government will also provide suitable subsidies towards irrigation (construction of wells, renovation of tanks and other minor irrigation schemes), development of local manurial resources (night soil, compost and green manure) and improved agricultural implements meant for oilseed production.

STAFF AND GUIDANCE

The cost of additional staff that will be needed for carrying out intensive development work will be met on a 50 : 50 basis by the Central and State Governments.

A Chief Oilseeds Development Officer has been appointed at the Secretariat of the Indian Central Oilseeds Committee with his headquarters at Hyderabad. He will maintain a close liason with the State Governments and coordinate the programme of oilseeds development.

A team of technical officers has also been constituted to visit the various States and tender on-the-spot advice on the implementation of their oilseed production programmes.

RESEARCH

For the last many years, the Indian Central Oilseeds Committee has been financing research schemes for improving oilseed cultivation. To supplement the effort of the Committee, the Central Government will now give a special grant of Rs. 5 lakhs per year to the Committee during the Third Plan period.

A provision of Rs. 25 lakhs has also been made by the Central Government to finance the schemes on technological research on vegetable oils and oilseeds.

EXTENSION METHODS SUCCEED IN VACCINATION CAMPAIGN

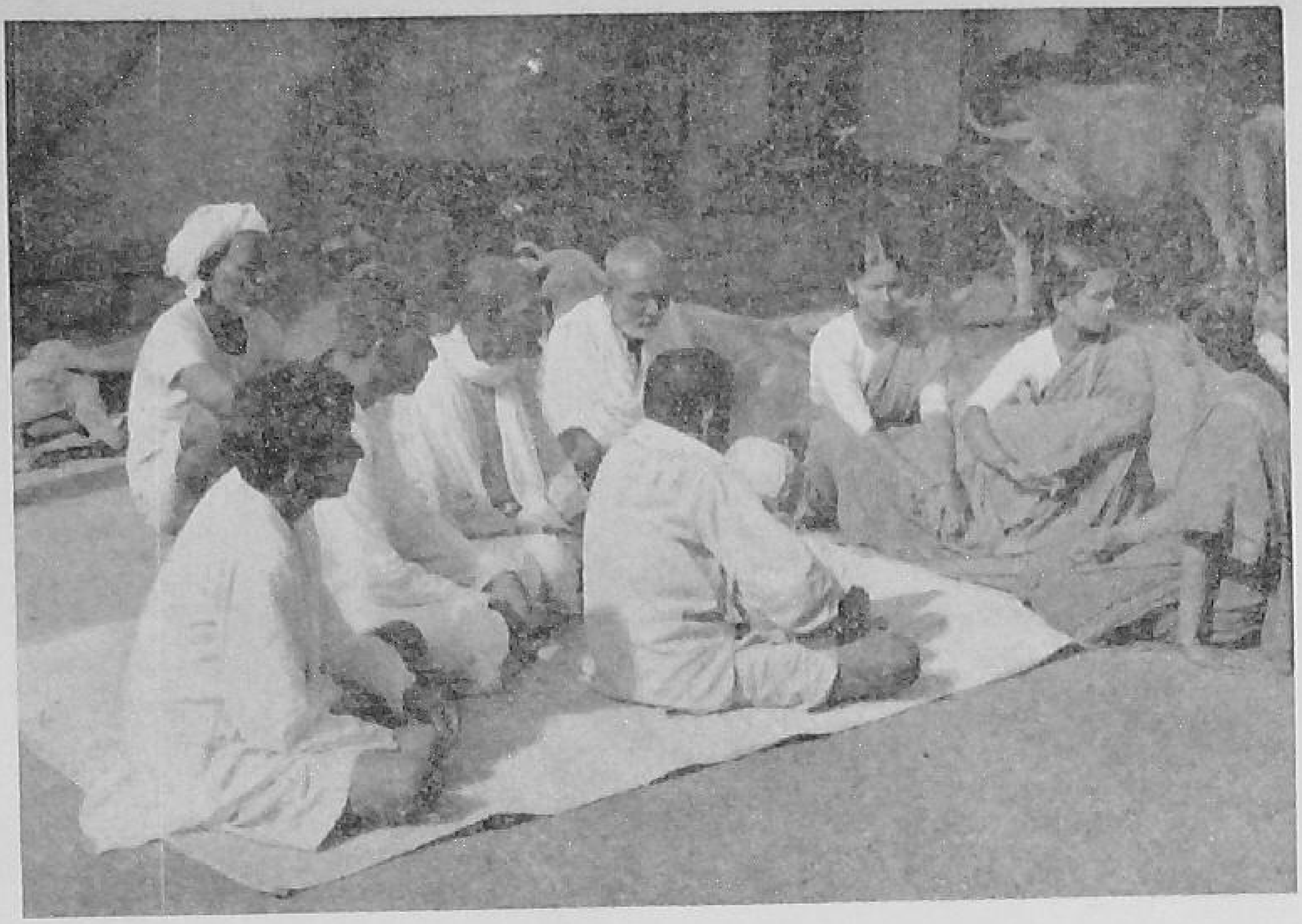
By D. GANESH

Recently, trainees of the Home Science Wing, Mandya, in Mysore State had a village camp for 10 days in Hullenahalli near the Training Centre, as part of their training programme. Hullenahalli is one of the villages selected for intensive work with various Extension methods such as deomnstrations, talks, surveys, cultural programmes, etc. During this period the trainees organized a Mass Primary Vaccination Campaign because of an out-break of smallpox epidemic in the nearby village, Sampalli.

The campaign was very successful because of the cooperation of the Rural Medical Officer of Health, Shivalli, Primary Health Unit and the leaders of the Hullenahalli village. As per the survey conducted by the Gram Sevika trainees, there were 72 unprotected children in the village. During the campaign, 66 children were vaccinated and 2 were rejected by the doctor as they had chicken-pox. The remaining 4 were vaccinated later on.

Various Extension methods were employed in the campaign as shown in the following photographs.

An instructress discusses the Primary Vaccination Campaign in the village with the trainees



CONTACTING VILLAGE LEADERS

Trainees and the instructress meet the village leaders for enlisting their cooperation in the campaign work

INDIVIDUAL CONTACT

Trainees in a group contact village women individually

GROUP CONTACT

Trainees with their instructress use audio-visual aids for educating the women regarding the necessity of protecting their children against smallpox

MASS CONTACT

Trainees play a drama to emphasize the necessity protecting children against smallpox

WIDE PUBLICITY

Wide publicity is given throughout the village on the day of the commencement of the Smallpox Eradication Scheme

Rural women bring their children for vaccination

The doctor of Shivalli Primary Health Unit vaccinates a child

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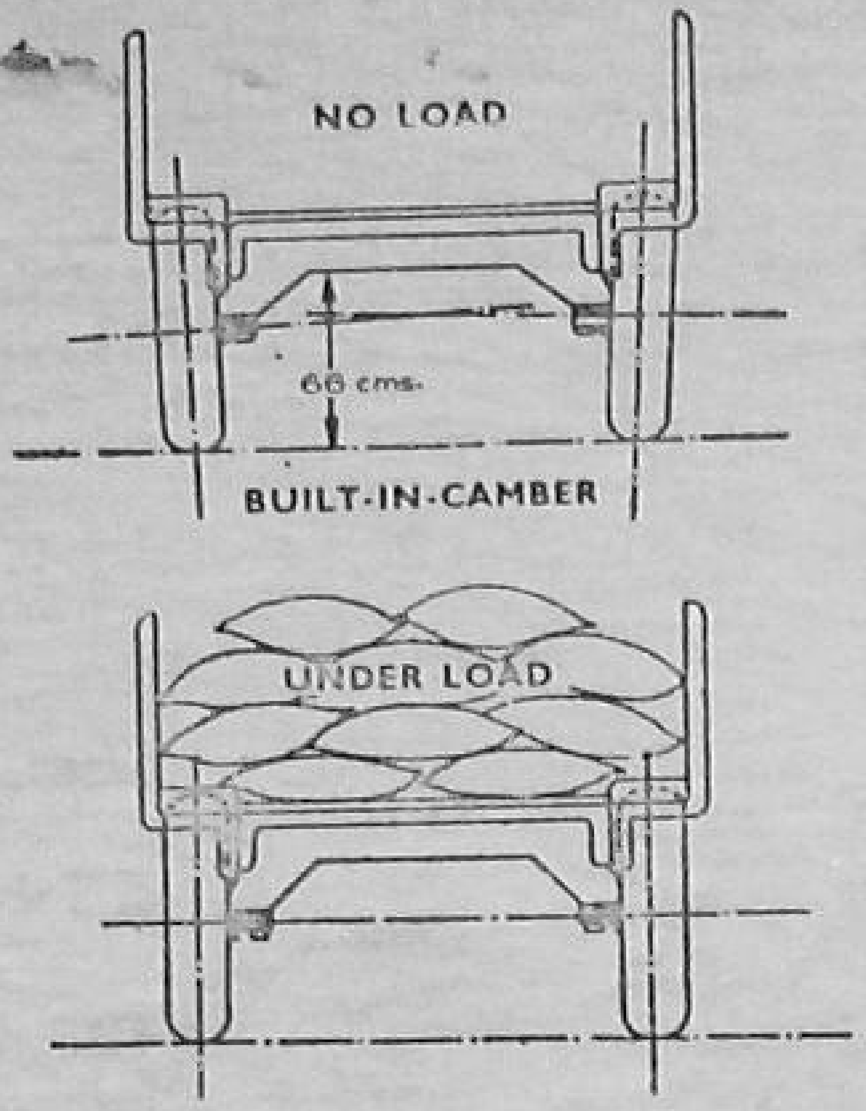
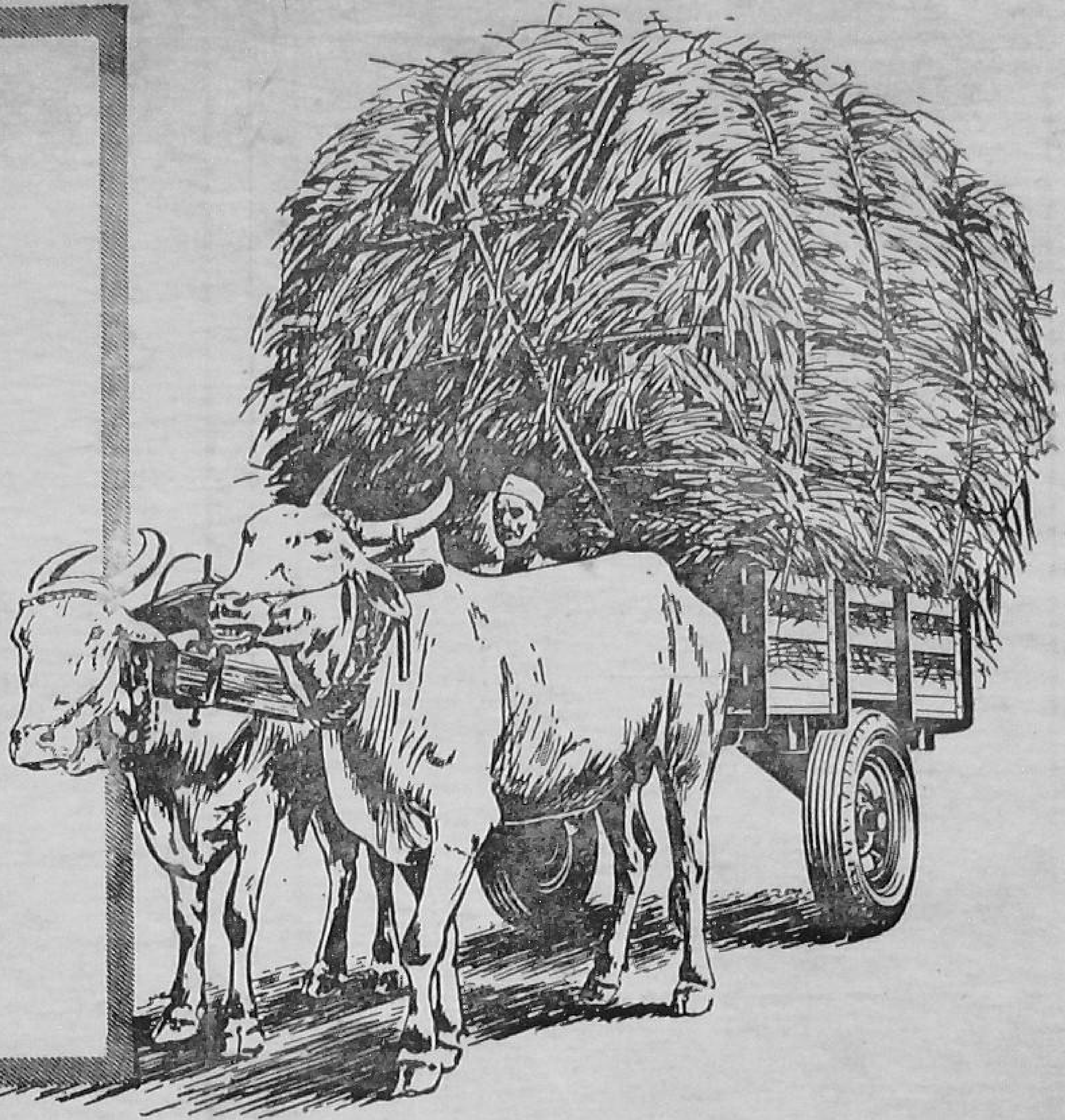


Diagrams show Voltas Bullock Cart with Built-in Camber and High Clearance under no load and load conditions



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